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Physics Abstracts

Science Abstracts Series A
January-June 1979

Subject Index (M – Z)

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SIX-MONTHLY INDEXES TO SCIENCE ABSTRACTS

Cumulative indexes to Science Abstracts are published twice a year covering the period January-June and July-December. They comprise author and subject indexes and some specialised or 'small' indexes. For Physics Abstracts and Electrical & Electronics Abstracts the Author Index and Subject Index are published as separate volumes. In this case the Small Indexes are included in the Author Index volume.

Subject Index

The Subject index provides an alphabetical subject key to the articles included in the abstracts journal. Some general guidance on its use is given below:

1. Look in the index for the name of the specific subject in which you are interested. In most cases this name will be a heading in the index and you will find relevant articles listed under it. The majority of the subject headings fall into the following catagories: property, phenomena, substance or named objects, instrument, device, theory, method, process, application, event.

2. Occasionally you will be directed from the subject heading chosen to a different heading under which the relevant or additional articles are listed.

3. If you do not find the subject heading you first chose, try a more general heading.

4. Each entry under the heading relates to an article appearing in the abstracts journal and gives the serial number of that article in the journal preceded by the last digit of the current year, e.g. 9-12345; i.e. Abstract number 12345 in the abstracts journal for 1979.

The language of the article, if it is not in English, is also indicated. e.g. digital frequency meter jamming, distribution function determ. (Russian) 9-41575.

Each entry starts with a Keyword or Keyphrase considered to be most relevant to the heading. On sorting these Keywords, the qualifying prefixes are usuallly ignored. (e.g. α-brass, 5-sulphosalicylic, 31 Cygni, n-Ge are sorted under brass, sulphosalicylic, Cygni, Ge respectively).

There are three main Keyword lists; alphabetical A-Z, elementary particles, and chemical symbols (organic substances are written and not given as chemical formula). More than one Keyword list may be present under each subject heading.

For document on, say, 'photoemission of germanium' at least two access points 'photoemission' and 'Germanium' are provided. Under the heading 'photoemission' the Keyword will be 'Ge' and under 'germanium' the Keyword will be 'photoemission'.

In a case like this, it is advisable and quicker to use the heading 'photoemission' and go straight to the chemical symbol list for 'Ge'.

Intermetallic compounds are indexed under the appropriate alloy headings. The chemical formula is used as Keyword. However, it is important to realise in searching the chemical symbol list that, at present, alloys and intermetallic compounds are sorted separately. For example FeCo is sorted at the end of the Fe- list e.g. Fe-Al, ... Fe-Co, ... Fe-Si, ... Fe-Si-B,... FeCo, ... FeSi and so on in this order.

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Abbreviations and Acronyms

Abbreviations and acronyms are used in the modifiers in all INSPEC Cumulative Subject Indexes. Individual terms should be readily understood in the context of the subject headings. However, for users' guidance, two lists of these abbreviations and acronyms together with their meanings are published below. The main list contains mixed terms, and the special list contains terms more appropriate to some specific subject areas.

Main List of Keyword Abbreviations

AC	alternating current
ACV	air cushion vehicle
A/D	analogue-to-digital
ADP	administrative data processing
AES	Auger electron spectra (-oscopy)
AF	audio frequency
AFC	automatic frequency control
AFL	abstract family of languages
AGC	automatic gain control
AM	amplitude modulation
ANS	Astronomical Netherlands Satellite
APR	acoustic paramagnetic resonance
APS	appearance potential spectra (-oscopy)
APW	augmented plane wave
ATR	attenuated total reflection
ATS	applications technology satellite
AVC	automatic volume control
BARITT	barrier injection transit time
BCC	body centred cubic
BCD	binary-code decimal
BFO	beat-frequency oscillator
BP	boiling point
BWO	backward wave oscillator
BWT	backward wave tube
CAD	computer aided design
CAI	computer assisted instruction
CATV	community antenna TV
CCD	charge-coupled device
CDI	collector diffusion isolation
CDM	code division multiplexing
CDW	charge-density wave
CEM	channel electron multiplier
COM	computer output to microfilm
CP	charge, parity
CPT	charge, parity, time
CRO	cathode ray oscilloscope
CRT	cathode ray tube
CVD	chemical vapour deposition
CW	continuous wave
D/A	digital-to-analogue
DC	direct current
DDC	direct digital control
DDL	diode-diode logic
DFB	distributed feedback
DH	double heterostructure
DIL	dual-in-line
DM	delta modulation
DMSS	Defence Meteorological Satellite System
DOVETT	double velocity transit time
DPCM	differential pulse code modulation
DPSK	differential phase shift keying
DTA	differential thermal analysis
E1, E2	electric dipole, quadrupole
EAS	extensive air shower
ECG	electrocardiography (-gram)
EDP	electronic data processing
EEG	electroencephalography (-gram)
EHD	electrohydrodynamics
EHF	extremely high frequency
EHV	extra high voltage
ELDOR	electron electron double resonance
ELF	extremely low frequency
EM	electromagnetic
EMC	electromagnetic compatibility
EMF	electromotive force
EMG	electromyography (-gram)
ENDOR	electron nuclear double resonance
EOS	earth observatory satellite
EPMA	electron probe microanalysis
EPR	electron paramagnetic resonance
ERPS	extramolecular relaxation polarisation shift
ERTS	earth resources technology satellite
ESCA	electron spectroscopy for chemical analysis
ESFI	epitaxial silicon film on insulator
EUV	extreme ultraviolet
EXAFS	extended X-ray absorption fine structure
FCC	face centred cubic
FDM	frequency division multiplex(ing)
FEM	field emission microscopy
FET	field effect transistor
FFT	fast Fourier transform
FIM	field ion microscopy
FM	frequency modulation
FP	freezing point
FSK	frequency-shift keying
GAMBIT	gate modulated bipolar transistor
GARP	global atmospheric research programme
GATE	GARP Atlantic tropical experiment
HCP	hexagonal close packed
HEED	high energy electron diffraction
HF	high frequency or Hartree-Fock
HFB	Hartree-Fock-Bogoliubov
HFS	hyperfine structure
HV	high voltage
IC	integrated circuit
IF	intermediate frequency
IGFET	insulated gate field effect transistor
I^2L	integrated injection logic
I^3L	isoplanar I^2L
ILS	instrument landing system

IMPATT	impact avalanche transit time
INDOR	internuclear double resonance
INTELSAT	international telecommunications satellite consortium
I/O	input/output
IR	infrared
ISR	intersecting storage ring
LC	inductance-capacitance
LEC	liquid encapsulated Czochralski
LED	light emitting diode
LEED	low energy electron diffraction
LF	low frequency
LMC	Large Magellanic Cloud
LPE	liquid phase epitaxy
LSA	limited space charge accumulation
LSI	large-scale integration
LTE	local thermodynamic equilibrium
LV	low voltage
M1, M2	magnetic dipole, quadrupole
MBE	molecular beam epitaxy
MBPF	many-body perturbation theory
MCD	magnetic circular dichroism
MESFET	metal semiconductor field effect transistor
MF	medium frequency
MFP	mean free path
MHD	magnetohydrodynamics
MIC	microwave integrated circuit
MIM	metal-insulator-metal
MIS	metal-insulator-semiconductor, management information system
MMF	magnetomotive force
MNOS	metal-nitride-oxide-semiconductor
MOS	metal-oxide-semiconductor
MOSFET	metal-oxide-semiconductor field effect transistor
MOST	metal-oxide-semiconductor transistor
MP	melting point
MSI	medium scale integration
MTBF	mean-time between failures
MTF	modulation transfer function
MUF	maximum usable function
NAND	not-and (logic)
NC	numerical control
NDT	nondestructive testing
NEMO	non-empirical molecular orbitals
NMR	nuclear magnetic resonance
NOR	not-or (logic)
NQR	nuclear quadrupole resonance
NRM	nuclear remanent magnetisation
OAO	orbiting astronomical observatory
OCR	optical character recognition
ODMR	optical detection of magnetic resonance
OER	oxygen enhancement ratio
OGO	orbiting geophysical observatory
OR	operations research
OSO	orbiting solar observatory
OTF	optical transfer function
PABX	private automatic branch exchange
PAC	perturbed angular correlation
PBX	private branch exchange

PC	printed circuit
PCB	printed circuit board
PCAC	partially conserved axial currents
PCB	printed circuit board
PF	power factor
PFM	pulse frequency modulation
PID (PI, PD)	proportional + integral + differential (derivative)
PLA	phase locked arrays
PLC	programmable logic control
PLL	phase locked loops
PM	pulse modulation
PMR	proton magnetic resonance
POS	point of scale
PPI	plan position indicator
PPM	pulse position or pulse phase modulation or parts per million
PRF	pulse recurrence (repetition) frequency
PROM	programmable read-only memory
PSK	phase shift keying
PTM	pulse time modulation
PWM	pulse width modulation
QED	quantum electrodynamics
RAM	random access memory
RC	resistance-capacitance
R & D	research and development
RF	radio frequency
RFI	radio frequency interference
RHEED	reflection high energy electron diffraction
RLC	resistance-inductance-capacitance
RMS	root-mean-square
ROM	read-only memory
RPA	random phase approximation
SAS	small astronomy satellite
SAW	surface acoustic waves
SCF	self consistent field
SCL	space charge limited
SCPT	self consistent perturbation theory
SCR	silicon controlled rectifier
SDM	space division multiplexing
SEM	scanning electron microscope
SFE	solar-flare effect
SHF	superhigh frequency
SHG	second harmonic generation
SIMS	secondary ion mass spectrometer
SISAM	spectrometer with interference selective amplitude modulation
SMC	Small Magellanic Cloud
SMS	synchronous meteorological satellite
S/N	signal-to-noise
SOS	silicon on sapphire
SQUID	superconducting quantum interference device
SSB	single sideband
SSC	sudden storm commencement
SST	supersonic transport
STD	salinity-temperature-depth
STD	subscriber trunk dialling
STEM	scanning transmission electron microscopy
STOL	short take-off and landing
SWR	standing wave ratio
SXAPS	soft X-ray appearance potential spectrum

TCR	temperature coefficient of resistance
TDM	time division multiplex(ing)
TDMA	time division multiple access
TE	transverse electric
TEA	transversely excited atmospheric
TEM	transverse electromagnetic, transmission electron microscopy
TLD	thermoluminescent dosimeter(-ry)
TM	transverse magnetic
TRAPATT	trapped plasma avalanche triggered transit
TRM	thermoremanent magnetisation
TSC	thermally stimulated currents
TSEE	thermally stimulated exo-electron emission
TTL	transistor transistor logic
TV	television
TW	travelling wave
TWT	travelling wave tube

UHF	ultra high frequency
UHV	ultra high voltage
ULF	ultra low frequency
UMD	unitised microwave devices
UPS	ultraviolet photoelectron spectra
US	ultrasonic
UV	ultraviolet

VDM	vector dominance model
VDU	visual display unit
VLBI	very long base line interferometry
VOR	VHF omnidirectional range
VPE	vapour phase epitaxy
VRC	visual record computer
VSB	vestigial sideband
VSWR	voltage standing wave ratio
VTOL	vertical take-off and landing
VTR	voltage transformation ratio

XPS	X-ray photoelectron spectra

Special List

a. Liquid Crystals

BBEA	4-butoxybenzal-4′ethylaniline
COC	cholesteryl oleyl carbonate
HBAB	hexyloxybenzilidene-p′ aminobenzonitrile
HOBHA	p-n-heptyloxy-benzilidene-p-n heptylaniline
MBBA	methoxy-benzylidene-butyl-aniline
PAA	paraazoxyanisole
PAP	paraazoxyphenetole
TBBA	terephthal-bis-butylaniline

b. Orbital Calculation

APSG	Antisymmetric product of separated geminals

CEPA	coupled electron pair approximation
CGTO	contracted Gaussian-type orbital
CHF	coupled Hartree-Fock
CI	configuration interaction
CIEH	charge iterated extended Huckel
CI-HY	configuration interaction Hylleras
CNDO	complete neglect of differential overlap
CPA	coherent potential approximation
CS	coupled states

DECENT	distribution of exact classical energy transfer
DODS	different orbitals for different spins
DV-Xα	discrete variational Xα method

EB	exponential Born
ECP	effective core potential
EFM	extended Flygare method
EHP	electron-hole potential method
EHT	extended Huckel theory
EPEN	empirical potential energy function based on interactions of electrons and nuclei
ESE	essential structural elements

FPT	finite perturbation theory
FSGO	floating spherical Gaussian orbitals

GCM	generator coordinate method
GHF-NO-CI	generalised Hartree-Fock/natural orbital/ configuration interactions
GIAO	gauge-invariant atomic orbitals
GO	Gaussian orbitals
GOO	generalised Overhauser orbitals
GPM	ground potential model
GSO	general spin orbitals
GTO	Gaussian-type orbitals
GVB	generalised valence bond

HAM	hydrogenic atoms in molecules
HFO	Hartree-Fock-Overhauser
HFSL	Hartree-Fock-Slater-Latter
HMO	Huckel molecular orbitals
HOMO	highest occupied molecular orbitals
HORM	hybrid orbital rehybridisation method

ICDF	intermediate coupling Dirac-Fock
IEPA	independent electron pair approximation
INDO	intermediate neglect of differential overlap
INO	iterative natural orbital
IOC-ω	inclusion of the overlap charges in the omega
IRDO	intermediate retention of differential overlap
IVO	improved virtual orbitals

KKR	Korringa-Kohn-Rostoker

LCAO	linear combination of atomic orbitals
LCBO	linear combinations of (semi-localised) band orbitals
LCGO	linear combination of Gaussian orbitals
LCRO	linear combination of Rydberg orbitals
LMTO	linear combination of muffin tin orbitals
LSD	local spin density
LUMO	lowest unoccupied molecular orbitals

MADO	Mulliken approximation for differential overlap
MC PE SCF	multiconfiguration paired excitation SCF
MCZDO	multi-centre zero differential overlap
MEDO	multipole expansion of diatomic overlap
MIEHM	modified iterative extended Huckel method
MO	molecular orbitals
MOCIC	molecular orbital constraint of interaction coordinates

MODPOT	model potential
MRD	multi-reference double excitation
MRINDO	modified Rydberg INDO
MS-MA	Murrell-Shaw-Musher-Amos perturbation theory
MT Xα	muffin-tin Xα
MWH	Mulliken-Wolfsberg-Helmholz semi-empirical method
NCMET	non-closed shell many electron theory
NDDO	neglect of diatomic differential overlap
NEMO	non-empirical molecular orbitals
NEVE	non-empirical valence-electron
NNNDO	neglect of non-neighbour differential overlap
NPOST	non-perturbative open-shell theory
NPSO	non-paired spatial orbitals
NTO	natural transition orbitals
OPHF	orbital polarised Hartree-Fock
OPW	orthogonal plane wave
PCG VB	pairwise correlated generalised valence bond
PCILOCC	perturbative configuration interaction using localised orbitals for crystal calculation
PERTCI	perturbation configuration interaction calculation
PERICI	perturbation configuration interaction
PNO-CI	pair natural orbital configuration interaction
POL	pair orthogonalised Lowdin
PPDP/S	Pariser-Parr-Del Bene-Pople/Segal calculations
PPP	Pariser-Parr-Pople
PRDDO	partial retention of diatomic differential overlap
QDMBPT	quasi-degenerate many-body perturbation theory
RCNDO	Rydberg CNDO
RINDO	Rydberg INDO
RKKY	Rudermann-Kittel-Kasiya-Yosida
RORTE	relaxed orbital relativistic transition energies
RPM	relaxation potential model
SALC	symmetry adapted linear combinations of atomic orbitals
SAMO	simulated ab initio molecular orbitals
SCRF	self-consistent reaction field
SDO	shielded diatomic orbitals
SEHF	spin extended Hartree-Fock
SINDO	scaled INDO
SOG	strongly orthogonal geminal
SOS	sum over states
SOT	sum over triplets
SPA	separated pair approximation
SPHF	spin polarised Hartree-Fock
SPIN-CIPSI	spin symmetry adapted generalisation of CIPSI
SPPA	self-consistent polarisation propagator approximation
SRAS	symmetry-restricted annihilation of single excitations
SRMCASE	symmetry-restricted-multiconfiguration annihilation of single excitations
STO	Slater-type orbitals
STP	Slater transfer Preuss
SUHFC	spin unrestricted Hartree-Fock with local approximation for correlations
TDHF	time dependent Hartree-Fock
UCHF	uncoupled Hartree-Fock
UHF	unrestricted Hartree-Fock
VB	valence bond
VGAO	variable gauge atomic orbitals
VRDDO	variable retention of diatomic differential overlap
VSEPR	valence shell electron pair repulsion

c. Organic Substances

ABS resin	acrylonitrile-butadiene-styrene
DMSO	dimethyl sulphoxide
DPPH	diphenylpicrylhydrazyl
EDA	ethylene diamine
EDTA	ethylene diamine tetra-acetic acid
PMMA	polmethylmethacrylate
PTFE	polytetrafluoroethylene
PVC	polyvinyl chloride
TCNE	tetracyanoethylene
TCNQ	tetracyanoquinodimethane
TGS	triglycine sulphate
TGSe	triglycine selenate
TMMC	tetramethylammonium manganese chloride
TTF	tetrathiofulvalinium
TTT	tetrathiotetracene

d. Reactor Technology

AGR	advanced gas-cooled reactor
ATWS	anticipated transients without scram
BWR	boiling water reactor
CSM	continuous slowing down models
CTR	controlled thermonuclear reactor
EBR	experimental breeder reactor
ECC	emergency core cooling
ECELR	epithermal critical experiment laboratory reactor
FBR	fast breeder reactor
FFHR	fusion-fission hybrid reactor
FFTF	fast flux test facilities
FTR	fast test reactor
GCFR	gas-cooled fast breeder reactor
HCDA	hypothetical core disruptive accident
HFER	hot fuel examination facility
HFIR	high flux isotope reactor
HTGR	high temperature gas-controlled reactor
HWR	heavy water reactor
LMFBR	liquid metal fast breeder reactor
LOCA	loss of coolant accident
LOFT	loss of fluid test
LWR	light water reactor
MSR	molten salt reactor
PBF	power bursts facility
PBR	pebble bed reactor
PWR	pressurised water reactor
SGHWR	steam generating heavy water reactor
ZPPR	zero power plutonium reactor

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includes calculations of electronic and geometric molecular structure

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